WHAT IS CLAIMED IS:

1   1. A base transceiver station for use in communication

2   with a plurality of radio mobile station apparatuses based

3   on code division multiple access, comprising a reception

4   signal interference canceller device,

5   the interference canceller device comprising:

6   a slot configuration circuit for dividing a reception

7   signal at certain time intervals, converting the divided

8   signal into signals at a faster cycle and converting into

9   a signal having a serial slot configuration as many the

10 converted signals as stages for stage processing on a signal

11 identical to the converted signals at a faster cycle;

12   a correlation circuit for performing a despreading

13 process on the signal having the slot configuration;

14   a stage addition circuit for adding the number of

15 stages for stage processing to the despread signals;

16   a re-spreading circuit for performing a re-spreading

17 process on the signals which have been subjected to the stage

18 addition;

19   a synthesis circuit for performing a process of

20 synthesizing all of the spread signals which have been

21 subjected to the re-spreading process to generate replica

22 signals; and

23   a subtraction process circuit for performing a

24 subtraction process between the replica signals and the

25 reception signals,

26   wherein signals obtained by subtraction process for

27 the replica signals and the reception signals are repeatedly

28 fed back to the correlation circuit thereby to eliminate

29 an interference component.

1   2. A base transceiver station according to Claim 1,

2 wherein the slot configuration circuit divides the

3 reception signal at certain time intervals such that one

4 of the divided signals partially overlaps another divided

5 signal at a signal dividing point.

1   3. A base transceiver station according to Claim 1,

2 wherein among the signals having a serial slot configuration,

3 with respect to the slot signal to be despread:

4   before being inputted to the correlation circuit, only

5 a first slot thereof is allowed to pass through and the rest

6 of the slots is disallowed to pass; and

7   the signal whose second slot and subsequent slots are

8 subjected to an interference cancellation process and then

9 fed-back, is inputted into the correlation circuit.

1   4.   A base transceiver station according to Claim 1,

2   wherein the stage addition circuit selects valid signals

3   out of the despread signals inputted thereto, selects

4   signals to be added, and selects signals to be re-spread

5   and further selects the despread signals for controlling

6   selections thereof and adding.

1   5.   A base transceiver station according to Claim 1,

2   wherein:

3   the correlation circuit comprises a shift register,

4   despread code setting elements and a matched filter having

5   an addition circuit; and

6   in correlation detection for outputting a correlation

7   value signal by sequentially shifting the reception signals

8   inputted to the shift register to the subsequent stages,

9   and meanwhile integrating with the despread code setting

10 elements, and adding the integrated signals, the matched

11 filter conducts correlation detection by switching despread

12 codes set in the despread code setting element within the

13 period during which the signals in the shift register are

14 shifted to the subsequent stages, and performs a despreading

15 process for a plurality of users.

1   6. A base transceiver station according to Claim 1,

2   wherein the path detection circuit comprises:

3   a selector for selecting pilot signal portions at the

4   beginning of the correlation value signals outputted by the

5   correlation circuit;

6   an averaging circuit for performing an averaging

7   process on the selected pilot signals among the slot

8   signals;

9   an accumulation circuit for performing accumulation

10   of the averaged pilot signals and the slot signals in the

11   subsequent stages;

12   a forgetful averaging circuit for performing a

13   forgetful averaging process between the accumulatively

14   added signals and other accumulatively added signals in the

15   subsequent stages;

16   a path detection/peak detection circuit for detecting

17   paths for the reception signals from the correlation value

18   signals which have been subjected to the forgetful averaging

19   process and detecting the peaks and positions of valid

20   paths; and

21   a despread signal detection circuit for detecting

22   despread signals from the correlation value signals based

23   on the information of valid paths detected by the path

24   detection/peak detection circuit.

1   7.   A method for eliminating interference components in

2   a reception signal, comprising the steps of:

3   receiving a signal transmitted by a radio mobile base

4 station;

5   dividing the reception signal at certain time

6 intervals, converting the divided signal into signals at

7 a faster cycle and converting the thus obtained signals into

8 a signal having a serial slot configuration and including

9 as many signals identical to the thus obtained signals as

10 the number of stages for stage processing;

11   performing a despreading process on the signal having

12 the slot configuration and a feedback signal;

13   adding the number of stages for stage processing

14 despread signals obtained by the despreading process;

15   performing a despreading process on the signals which

16 have been subjected to the stage addition;

17   performing a process of synthesizing all of the spread

18 signals obtained by the re-spreading process to generate

19 replica signals; and

20   performing a subtraction process between the replica

21 signals and reception signals and generating the feedback

22 signal to output signals which have been subjected to the

23 stage addition.